INTERNATIONAL SEARCH REPORT

International application No.

Y JP 10-180840 A (Asahi Chemical Industry Co., 1,2 1,2 JP 13-180840 A (Asahi Chemical Industry Co., 7 July, 1998 (07.07.98), Full text; Figs. 1 to 9 (Family: none) Y JP 03-086223 A (Hitachi, Ltd.), 11 April, 1991 (11.04.91), Page 3, lower left column, lines 9 to 20; Figs. 1 to 8 (Family: none) Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date or priority claining or patent which may throw doubts on priority clain(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "C" document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date out priority clain(s) or which is cited to establish the publication date of another citation or other seems of particular relevance; the claimed invention comnot be considered to involve an inventive step when the document is considered with once or mose, the claimed invention cannot be considered with once or mose, the claimed invention cannot be considered with once or mose, the claimed invention cannot be considered with once or mose, the claimed invention cannot be considered to involve an inventive step when the document is considered to involve an inventive step when the document is considered to involve an inventive step when the document is considered to a person skilled in the article of the priority date claimed Date of the actual completion of the international search 18 June, 2004 (18.06.04) Date of the actual completion of the international search 18 June, 2004 (18.06.04) Date of the actual completion of the international search 18 June, 2004 (18.06.04) Authorized officer	A. CLASSIF	ICATION OF SUBJECT MATTER B29B7/58, 7/38, 7/84	PC1/01	220047005059
Minimum documentation searched (classification system followed by classification symbols) Tht.Cl	According to In	nternational Fatent Classification (IPC) or to both nati	ional classification and IPC	
Documentation searched other than minimum documentation to the extent that such documents are included in the fields exerched Jitsuyo Shinan Koho 1926–1996 Toroku Jitsuyo Shinan Koho 1994–2004 Kokai Jitsuyo Shinan Koho 1971–2004 Jitsuyo Shinan Toroku Koho 1996–2004 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No Y JP 10–180840 A (Asahi Chemical Industry Co., 1,2 Ltd.), 07 July, 1998 (07.07.98), Full text; Figs. 1 to 9 (Family: none) Y JP 03–086223 A (Hitachi, Ltd.), 11 April, 1991 (11.04.91), Page 3, lower left column, lines 9 to 20; Figs. 1 to 8 (Family: none) Extra production or potent but published on or after the international filing date or priority claims of the considered to document which may throw doubts on priority claims to extend the considered to involve an inventive step when the document is cited to establish the published prior to the international filing date but later than the priority detail chained. The document which may throw doubts on priority claims to which is cited to establish the published prior to the international filing date but later than the priority detail chained. The document published prior to the international filing date but later than the priority detail chained. Date of the actual completion of the international search 18 June, 2004 (18.06.04) Date of mailing address of the ISA/ Japane se Patent Office				
Jitsuyo Shinan Koho 1996-2004 Kokai Jitsuyo Shinan Koho 1991-2004 Jitsuyo Shinan Toroku Koho 1996-2004 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No Y JP 10-180840 A (Asahi Chemical Industry Co., Ltd.), 07 July, 1998 (07.07.98), Full text; Figs. 1 to 9 (Family: none) Y JP 03-086223 A (Hitachi, Ltd.), 11 April, 1991 (11.04.91), Page 3, lower left column, lines 9 to 20; Figs. 1 to 8 (Family: none) X Further documents are listed in the continuation of Box C. Special categories of cited documents: 10 to 6 of particular relevance to its object of the principle or theory with the application but cited to understand to be of particular relevance to its object of particular relevance to its object of particular relevance to involve an inventive at inventive step when the document is taken along document of particular relevance the claimed invention cannot be considered novel or cannot be considered in inventive step when the document is taken along to document of particular relevance, the claimed invention cannot be considered novel or cannot be considered novel or cannot be considered novel or more other subdection in the principle or the cannot of particular relevance, the claimed invention cannot be considered novel or more other subdection in the principle of the cannot cannot be considered novel or more other subdection in the principle of the cannot cannot be considered novel or more other subdection in the principle of the cannot cannot be considered novel or more other subdections, such combination being obvious to a person skilled in the an "A" document of particul	Minimum docu Int.Cl	mentation searched (classification system followed by B29B7/00-7/94	y classification symbols)	
C. DOCUMENTS CONSIDERED TO BE RELEVANT Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No Y JP 10-180840 A (Asahi Chemical Industry Co., Ltd.), 07 July, 1998 (07.07.98), Full text; Figs. 1 to 9 (Family: none) Y JP 03-086223 A (Hitachi, Ltd.), 11 April, 1991 (11.04.91), Page 3, lower left column, lines 9 to 20; Figs. 1 to 8 (Family: none) X Further documents are listed in the continuation of Box C. Special categories of cited documents: do to do particular relevance to the document defining the general state of the an which is not considered to the document of the international filing date or priority date and not in conflict with the application but cited to understand of the comment of the principle or theory underlying increasing the comment of considered to involve an inventive and comment to the principle or the considered to involve an inventive and comment to the principle or the considered for involve an inventive step when the document is taken alone document referring to an oral disclosure, use, exhibition or other means for comment of the international filing date but later than document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed. Y and the document is taken alone document is taken alone document of particular relevance, the claimed invention cannot be considered on the conflict with the application of cannot be considered to involve an inventive step when the document is taken alone document of particular relevance, the claimed invention cannot be considered to a parson stilled in the saft document of particular relevance, the claimed invention cannot be considered to a parson stilled in the saft document of particular relevance, the claimed invention cannot be considered to a parson stilled in the saft document of the international search report 0.5 July, 2004 (06.07.04)	Jitsuyo Kokai J	Shinan Koho 1926—1996 Sitsuyo Shinan Koho 1971—2004	Toroku Jitsuyo Shinan Koho Jitsuyo Shinan Toroku Koho	1994-2004 1996-2004
Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No Y	Electronic data t	pase consulted during the international search (name of	of data base and, where practicable, search t	erms used)
Y JP 10-180840 A (Asahi Chemical Industry Co., 1, 2 Ltd.), 07 July, 1998 (07.07.98), Full text; Figs. 1 to 9 (Family: none) Y JP 03-086223 A (Hitachi, Ltd.), 1, 1 April, 1991 (11.04.91), Page 3, lower left column, lines 9 to 20; Figs. 1 to 8 (Family: none) Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance articular relevance artic	C. DOCUMEN	NTS CONSIDERED TO BE RELEVANT		
Ltd.), 07 July, 1998 (07.07.98), Full text; Figs. 1 to 9 (Family: none) Y	Category*	Citation of document, with indication, where	appropriate, of the relevant passages	Relevant to claim No.
Page 3, lower left column, lines 9 to 20; Figs. 1 to 8 (Family: none)	Y	Ltd.), 07 July, 1998 (07.07.98), Full text; Figs. 1 to 9	cal Industry Co.,	1,2
Special categories of cited documents: A" document defining the general state of the art which is not considered to be of particular relevance E" earlier application or patent but published on or after the international filing date L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) O" document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed Oate of the actual completion of the international search 18 June, 2004 (18.06.04) Date of mailing address of the ISA/ Japanese Patent Office "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention cannot be considered novel or cannot be considered novel or cannot be considered novel or cannot be considered to involve an inventive step when the document is document published after the internation or other such document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the ant document member of the same patent family Date of mailing of the international search report 06 July, 2004 (06.07.04) Authorized officer A" document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention cannot be considered novel or cannot be considered to involve an inventive step when the document is document or patents. "Y" docume	Y	11 April, 1991 (11.04.91), Page 3, lower left column, 1 Figs. 1 to 8	i	1,2
document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search 18 June, 2004 (18.06.04) Date of mailing of the international search 06 July, 2004 (06.07.04) Date of mailing of the international search 06 July, 2004 (06.07.04) Authorized officer	Special category A" document de to be of partice earlier application date document whe cited to estal special reason	ories of cited documents: fining the general state of the art which is not considered cular relevance ation or patent but published on or after the international tich may throw doubts on priority claim(s) or which is olish the publication date of another citation or other is (as specified)	"T" later document published after the interdate and not in conflict with the application the principle or theory underlying the in document of particular relevance; the clean considered novel or cannot be considered novel or cannot be considered to involve an inventive strength."	ion but cited to understand vention aimed invention cannot be cred to involve an inventive
Japanese Patent Office	P" document put the priority da	elished prior to the international filing date but later than ate claimed completion of the international search	"&" document member of the same patent fail Date of mailing of the international search	nity
rm PCT/ISA/210 (second sheet) (January 2004)	Japanese	e Patent Office	Authorized officer Telephone No.	

INTERNATIONAL SEARCH REPORT

Form PCT/ISA/210 (continuation of second sheet) (January 2004)

International application No.
PCT/JP2004/005059

ategory*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 169391/1980(Laid-open No. 090733/1982) (Kishiyasu YAMAOKA), 04 June, 1982 (04.06.82), (Family: none)	1,2
i		
	·,	